REMARKS

In the Office Action dated September 10, 2003, the Examiner rejected claims 1-5, 10, 23, 26, 27, and 35-39 under 35 U.S.C. § 103(a) as being unpatentable over Donovan et al. (U.S. Patent No. 6,072,951) in view of Reeve et al. (U.S. Patent No. 5,535,393); rejected claims 14-19, 28, 44-48, and 53 under 35 U.S.C. § 103(a) as being unpatentable over Donovan et al.; and rejected claims 21, 22, 51, and 52 under 35 U.S.C. § 103(a) as being unpatentable over Donovan et al. in view of Lanning (U.S. Patent No. 5,787,285).

By this amendment, Applicant has proposed to amend claims 1-4, 10, 14, 21, 23, 28, 35-38, 44, 51, and 53. Based on these amendments and the following remarks, Applicant respectfully traverses the objection and/or rejection of claims 1-5, 10, 14-19, 21-23, 26-28, 35-39, 44-49, and 51-53.

The Finality of the Outstanding Office Action

Applicant respectfully requests that the finality of the Office Action dated September 10, 2003 be withdrawn because the Examiner has presented new grounds of rejections of claims or claim recitations previously presented in the response filed June 17, 2003.

In the Office Action dated April 11, 2003, the Examiner rejected claims 1-5, 9, 10, 14-20, 23, 24, 28-39, 43-50, and 54 under 35 U.S.C. § 102(e) as being anticipated by Donovan et al. (see Office Action dated April 11, 2003, pages 2-8). In the same Office Action, the Examiner rejected claims 6 and 7 under 35 U.S.C. § 103(a) as being unpatentable over Donovan et al. in view of Wang. The Examiner did not address claim

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42. (See Office Action dated April 11, 2003, pages 8-9). In response, Applicant canceled claims 8, 13, and 42 and incorporated their recitations in independent claims 1, 10, and 35, respectively. (See response filed June 17, 2003). In fact, Applicant specifically pointed out the relationship between the amendments to claims 1, 10, and 35 and canceled claims 8, 13, and 42 in the remarks section of the response (See response filed June 17, 2003, page 11, lines 2-4 and page 13, lines 12-14). Accordingly, the Examiner was put on notice that the amendments to claims 1, 10, and 35 included recitations that were previously presented by Applicant and considered by the Examiner.

In the Office Action dated September 10, 2003, the Examiner rejects claims 1-5, 10, 23, 26, 27, and 35-39 under 35 U.S.C. § 103(a) as being unpatentable over Donovan et al. in view of Reeve et al. Accordingly, the Examiner has rejected, at least, claims 1, 10, and 35 under new grounds (i.e., with new prior art) that was not presented in the Office Action dated April 11, 2003. Because the amendments to claims 1, 10, and 35 included in the June 17, 2003 response did not present recitations not previously considered by the Examiner, the final rejection of these claims in view of new prior art (i.e., Reeve et al.) is improper. The proper reasons for asserting a final rejection are set forth in M.P.E.P. § 706.07(a), which states:

> [u]nder present practice, second or any subsequent actions on the merits shall be final, *except where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims* nor based on information submitted in an information disclosure statement filed during the period set forth in 37 CFR 1.97(c) with the fee set forth in 327 CFR 1.17(p). [emphasis added].

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As explained, the amendments to claims 1, 10, and 35 in the June 17, 2003 response did not necessitate a new ground of rejection by the Examiner because these claims were merely changed to include recitations of dependent claims that the Examiner rejected in view of different prior art (e.g., Wang and Donovan et al.). Moreover, Reeve et al. was not presented by Applicant in an IDS filed under 37 C.F.R. § 1.97(c). In fact, the Examiner cites this reference for the first time in the outstanding Office Action (See PTO Form 892 accompanying the Office Action dated September 10, 2003).

Applicant further notes that the Examiner rejected claims 8, 13, and 42 under 35 U.S.C. § 112, first paragraph (See Office Action dated April 11, 2003, page 2). Applicant responded with arguments traversing the Examiner's position for this rejection (See response filed June 17, 2003). As a result, the Examiner withdrew the rejection of these claims under 35 U.S.C. § 112, first paragraph, constructively agreeing with Applicant's remarks. Therefore, the Examiner should not rely on these rejections in support of the finality of the outstanding Office Action.

Moreover, Applicant traverses the finality of the outstanding Office Action because the Examiner has presented a new ground of rejection for claims 28 and 53, which were not amended in the June 17, 2003 response filed by Applicant. Originally, the Examiner rejected these claims under 35 U.S.C.§ 102(e) as being anticipated by Donovan et al. (See Office Action dated April 11, 2003, page 7). In response, Applicant presented arguments traversing this rejection without amending these claims. The Examiner now rejects claims 28 and 53 under 35 U.S.C. § 103(a) in view of Donovan et al. Accordingly, the Examiner introduces a new ground of rejection of claims (i.e.,

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claims 28 and 53) that is neither necessitated by an amendment of the claims nor based on information submitted in an information disclosure statement filed during the period set forth in 37 CFR 1.97(c), which as explained above is not permitted by M.P.E.P. § 706.07(a).

For at least the above reasons, Applicant requests that the finality of the Office Action dated September 10, 2003 be withdrawn.

Rejections under 35 U.S.C. § 103(a)

Donovan et al. discloses a system that enhances the performance of a compiler by inlining frequently executed paths of child procedures. The system estimates path frequencies for each procedure in a program and constructs a call graph representing execution paths between various child and parent procedures. Using the call graph, the system inlines frequently executed paths of each child procedure such that the inlined paths are executed with the child's parent procedure.

Reeve et al. discloses a system that uses directives for converting iterative program sequences to "tiled" sequences used in parallel executions. The sequences are arranged into subtasks which are allocated processors.

In contrast, claim 1 recites a method for inlining code of a computer program including, among other things,

> Identifying a subprogram of the computer program, wherein the subprogram exhibits varying execution characteristics associated with corresponding execution paths;
>
> identifying a range of variables associated with a first execution characteristic of the subprogram;
>
> associating the range of variables with a first execution path of the subprogram;

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coding an inline directive as part of a program comment
statement associated with the first execution path; and

selectively inlining computer code of the first execution path
of the subprogram based on the inline directive.

Donovan et al. and Reeve et al., alone or in combination, fail to teach these

recitations. Although these references disclose systems that use directives, neither of

them teach or suggest, among other things, identifying and associating a range of

variables, as recited in claim 1. Further, neither of these references disclose or suggest

coding an inline directive as part of a program comment statement associated with an

execution path associated with the range of variables, as recited in this claim.

Applicant notes the Examiner's position that the frequency of program paths are

altered by arguments of the program (See Office Action, dated September 10, 2003,

page 6, lines 18-19-referring to value ranges of operands recited in claim 28). Although

the variances in program execution may be associated with varying operand values, this

position does not address the fact that neither Donovan et al. or Reeve et al. disclose or

suggest identifying and associating a range of variables, as recited in claim 1. As

mentioned by Donovan et al. and reinforced by the Examiner, Donovan et al.'s system

may use directives for execution paths most frequently executed. Although there may

be some correlation between the execution path frequency and values of operands,

Donovan et al. and Reeve et al., alone or in combination, do not consider identifying a

range of variables associated with a first execution characteristic of a subprogram,

associating the range of variables with a first execution path of the subprogram, and

coding an inline directive, as recited in claim 1. Instead, Donovan et al. may consider

the general characteristic of execution path frequency for directive implementation, but

fails to describe, suggest, or even take into consideration the values of any variables.

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Reeve et al. is similarly deficient in that the reference does not teach or suggest these recitations as well.

Because Donovan et al. and Reeve et al., alone or in combination, do not teach or suggest every recitation of claim 1, Applicant requests that the rejection of this claim under 35 U.S.C. § 103(a) be withdrawn and the claim allowed.

Claims 10 and 35 include recitations similar to those of claim 1. As explained, claim 1 is distinguishable from Donovan et al. and Reeve et al. Accordingly, claims 10 and 35 are also distinguishable from these references for at least the same reasons set forth in connection with claim 1, and Applicant requests that the rejection of these claims under 35 U.S.C. § 103(a) be withdrawn and the claims allowed.

Claims 2-5 and 36-39 depend from claims 1 and 35, respectively. As explained, claims 1 and 35 are distinguishable from Donovan et al. and Reeve et al. Accordingly, claims 2-5 and 36-39 are also distinguishable from these references for at least the same reasons set forth in connection with claims 1 and 35, and Applicant requests that the rejection of these claims under 35 U.S.C. § 103(a) be withdrawn and the claims allowed.

Claim 14, as amended, recites a method of determining whether to replace subprogram code of a computer program including, among other things,

> identifying a subprogram that has a first and a second execution characteristic;
>
> associating certain arguments that cause the subprogram to exhibit the first execution characteristic with a portion of the subprogram;
>
> replacing the portion of the subprogram that exhibits the first execution characteristic with program instructions that explicitly define operations of the first execution characteristic; and

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leaving intact a second portion of the subprogram that
exhibits the second execution characteristic.

Donovan et al., alone or in combination with any other cited reference, such as
Reeve et al., fails to teach or suggest, among other things, associating certain
arguments that cause the subprogram to exhibit the first execution characteristic with a
portion of the subprogram, as recited in claim 14. Although Donovan et al. describes a
system that uses directives, the reference falls short in describing or even suggesting
any process or system that associates arguments with a portion of a program. Nor
does the reference disclose or suggest associating certain arguments that cause a
subprogram to exhibit a first execution characteristic, as recited in this claim. As
explained, the mere fact that Donovan et al. may use directives in programs that include
paths that may vary based on the value of an arguments in a conditional statement
does not suggest or teach the associating step, as recited in claim 14.

Because Donovan et al., alone or in combination with any other reference, such
as Reeve et al., fails to disclose or suggest each and every recitation of claim 14,
Applicant requests that the rejection of this claim under 35 U.S.C. § 103(a) be
withdrawn and the claim allowed.

Claim 44 includes recitations similar to those of claim 14. As explained, claim 14
is distinguishable from Donovan et al. Accordingly, claim 44 is also distinguishable from
this reference for at least the same reasons set forth in connection with claim 14, and
Applicant requests that the rejection of this claim under 35 U.S.C. § 103(a) be
withdrawn and the claim allowed.

Claims 15-19 and 45-49 depend from claims 14 and 44, respectively. As
explained, claims 14 and 44 are distinguishable from Donovan et al. Accordingly,

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claims 15-19 and 45-49 are also distinguishable from this reference for at least the same reasons set forth in connection with claims 14 and 44, and Applicant requests that the rejection of these claims under 35 U.S.C. § 103(a) be withdrawn and the claims allowed.

Claim 23 recites a computer-readable medium for inlining computer program code, which when executed by a processor performs the steps of

> identifying a subprogram that has a plurality of execution characteristics by identifying ranges of variables that cause the subprogram to exhibit the execution characteristics, associating a certain range of variables with one of the execution characteristics, and associating the certain range of variables with a selected portion of the subprogram that corresponds to the one execution characteristic;
>
> inlining only the selected portion of the subprogram that corresponds to the one execution characteristic,
>
> wherein the selected portion is defined by a selected path of a plurality of execution paths that may be executed by the subprogram and the selected path is determined by identifying a non-executable statement configured to direct the computer to interpret at least a portion of the non-executable statement as a special directive.

As explained above in connection with claim 1, neither <u>Donovan et al.</u> or <u>Reeve et al.</u> teach or suggest identifying and associating ranges of variables, as recited in claim 23. Accordingly, claim 23 is also distinguishable from these references for at least the same reasons set forth in connection with claim 1, and Applicant requests that the rejection of this claim under 35 U.S.C. § 103(a) be withdrawn and the claim allowed.

Claims 26 and 27 depend from claim 23. As explained, claim 23 is distinguishable from <u>Donovan et al.</u> or <u>Reeve et al.</u> Accordingly, claims 26 and 27 are also distinguishable from these references for at least the same reasons set forth in

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connection with claim 23, and Applicant requests that the rejection of these claims under 35 U.S.C. § 102(e) be withdrawn and the claims allowed.

Claim 28 recites, among other things, a computer-implemented method of replacing subprogram code in a computer system, comprising the steps of,

> identifying a subprogram that operates in a first manner
> when operands passed to the subprogram fall within a first
> range of values and that operates in a second manner when
> operands passed to the subprogram fall within a second
> range of values;

> associating the operands with the first range of values with
> an execution path of the subprogram;

> replacing subprogram statements included in the execution
> path that cause the subprogram to operate in the first
> manner with expanded code.

Donovan et al. alone or in combination with any other cited reference, such as Reeve et al., fails to teach or suggest, among other things, associating the operands with the first range of values with an execution path of the subprogram, as recited in claim 28.

As explained, although Donovan et al. uses directives in program execution processes, they do not show or suggest associating values of any operands with an execution path. The Examiner's position that the relationship between execution path frequencies and program arguments is misplaced. Regardless of whether Donovan et al. discloses frequency path profiling processes, the reference does not associate operands having a first range of values with an execution path of a subprogram. Instead, as described above, the reference merely mentions the use of path frequency as a basis for using directives but falls short of describing or suggesting an association of operands with any of a program's execution paths. Because Donovan et al. fails to

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teach or suggest the recitations of claim 28, the rejection of this claim under 35 U.S.C. § 103(a) should be withdrawn and the claim allowed.

Claim 53 includes recitations similar to those of claim 28. As explained, claim 28 is distinguishable from Donovan et al. Accordingly, claim 53 is also distinguishable from this reference for at least the same reasons set forth in connection with claim 28, and Applicant requests that the rejection of this claim under 35 U.S.C. § 103(a) be withdrawn and the claim allowed.

Claims 21, 22, and 51, 52 depend from claims 14 and 44, respectively. As explained, claims 14 and 44 are distinguishable from Donovan et al. Accordingly, claims 21, 22, 51, and 52 are also distinguishable from this reference for at least the same reasons set forth in connection with claims 14 and 44. Further, Lanning does not teach or suggest the recitations of these claims. Because neither Donovan et al. or Lanning, alone or in combination, teach or suggest the recitations of claims 14 and 44, Applicant requests that the rejection of claims 21, 22, 51, and 52 under 35 U.S.C. § 103(a) be withdrawn and the claims allowed.

Conclusion

Applicant respectfully requests that this Amendment under 37 C.F.R. § 1.116 be entered by the Examiner, placing the pending claims in condition for allowance. Applicant submits that the proposed amendments of claims 1-4, 10, 14, 21, 23, 28, 35-38, 44, 51, and 53 do not raise new issues or necessitate the undertaking of any additional search of the art by the Examiner, since all of the elements and their relationships claimed were either earlier claimed or inherent in the claims as examined. Therefore, this Amendment should allow for immediate action by the Examiner.

Furthermore, Applicant again respectfully points out that the final action by the Examiner presented some new arguments and grounds of rejections that were not necessitated by an amendment to some of the pending claims. It is respectfully submitted that the entering of the Amendment would allow the Applicant to reply to the Examiner's new positions and place the application in condition for allowance. As such, Applicant requests that the finality of the previous Office Action be withdrawn.

Finally, Applicant submits that the entry of the amendment would place the application in better form for appeal, should the Examiner dispute the patentability of the pending claims.

In view of the foregoing remarks, Applicant submits that this claimed invention, as amended, is neither anticipated nor rendered obvious in view of the prior art references cited against this application. Applicant therefore requests the entry of this Amendment, the Examiner's reconsideration and reexamination of the application, and the timely allowance of the pending claims.

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In view of the foregoing remarks, Applicant submits that this claimed invention, is neither anticipated nor rendered obvious in view of the prior art references cited against this application. Applicant therefore request the Examiner's reconsideration and reexamination of the application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER, L.L.P.

Dated: December 9, 2003

By: _____
Joseph E. Palys
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